

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Elliott et al.

Serial No.: 10/812,117

Filed: March 29, 2004

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AUGUST 20, 2007

For: CONTACT INTEGRATION
METHOD

Confirmation No.: 7596

Examiner: R. Pompey

Group Art Unit: 2812

Attorney Docket No.: 2269-6990.2US
(95-0789.02/US)

Notice of Allowance Mailed:

July 2, 2007

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This communication is filed in response to the Notice of Allowance mailed June 16, 2006 and sets forth Applicant's comments, pursuant to 37 C.F.R. §1.104(e), on the Examiner's Statement of Allowable Subject Matter accompanying the Notice of Allowance.

In the Notice of Allowance, the Examiner indicates:

The primary reason for the indication of the allowable subject matter of claims 9 and 10 is the inclusion therein, in combination as currently claimed, of the

limitation of forming a silicide layer on the contact surface made of silicon, forming a metal nitride layer on the sidewall of the contact hole such that it is *in contact* with the insulation layer, and depositing a single layer of metal such that it is in contact with both the silicide layer and the metal nitride layer and the metal nitride layer. This limitation is found in claims 9 and 10 and is neither disclosed nor taught by the prior art of record, alone or in combination.

The primary reason for the indication of the allowable subject matter of claims 18 and 20 is the inclusion therein, in combination as currently claimed, of the limitation of a plug and a metallization line wherein the plug and metallization line have a substantially continuous composition gradient of an alloying element between them. This limitation is found in claims 18 and 20 and is neither disclosed or taught by the prior art of record, alone or in combination.

The primary reasons for the allowance of claims 12-14 is the inclusion therein, in combination as currently claimed, of the limitations of forming a silicide layer on the contact surface, forming a metal nitride layer on the sidewall of the contact hole such that it is *in contact* with the insulation layer, and depositing a single layer of metal such that it is in contact with both the silicide layer and the metal nitride layer. These limitations were found in claims 12-14 and are neither disclosed nor taught by the prior art of record, alone or in combination.¹

Applicants concur with the reasons as stated by the Examiner insofar as they comprise a summary, which is exemplary and not limiting. However, the scope of the claims is based on the actual language of the claims and equivalents thereof, and not on a paraphrase or summary of the claim language.

The Independent claims as allowed recite features and methodology in addition to, and in different language than, those described in the Statement of Allowable Subject Matter. Furthermore, the dependent claims recite elements in addition to those of the independent claims, which are also not reflected in the Statement of Allowable Subject Matter. Such additional elements, in combination with those of the independent claims from which each claim depends, provide additional reasons for patentability. Accordingly, the scope of the claims must be determined from the literal language of each as a whole, as well as all equivalents thereof.

¹ These comments with respect to claims 12-14 were also provided in the office action mailed December 1, 2005.

Therefore, to the extent that the Examiner's reasons for allowance as stated are not relevant to, or wholly encompassing of, a particular claim, independent or dependent, Applicants assume that (pursuant to 37 C.F.R. §1.104(e)) the Examiner has determined that the record of the prosecution as a whole of the application makes clear the reasons for allowing those claims. Further, it appears, pursuant to M.P.E.P. 1302.14, that the Examiner's Statements of Allowable Subject Matter are not intended to encompass all of the reasons for allowance.

Respectfully submitted,



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